

## Index tracking problem solving using metaheuristic firefly algorithm

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### Abstract

*Index tracking portfolio is a form of investment that is faced with popularity. This problem is the choice of a portfolio that replicates the performance of a stock market index by purchasing a subset of the stocks included in the index. Due to the large number of companies that create the index, the choice of limited number of stocks is a combinatorial problem that cannot be solved in polynomial time. There is a cardinality constraint, includes the number of stocks in portfolio and also minimum and maximum holding level for every stock is a constraint in this problem. In order to solve NP-Hard optimization problems, metaheuristic algorithms have proven their efficiency. In this study, an intelligent metaheuristic, which utilizes the firefly algorithm, is presented for solving the index tracking problem. Proposed approach was applied to the S&P500 index, the Hang Seng and the Tehran Stock Exchange. The results indicate the efficiency of the scheme.*

*Keywords: Firefly algorithm, index tracking, passive investment management*

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## Studying the Dynamics of Knowledge-Sharing Success Factors Based on Willing Criteria

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### Abstract

*One of the main bases of the knowledge management process is knowledge-sharing which means extended interpersonal interactions leading to distribution and absorption of knowledge and experience effectively and appropriately. In order to analyse the strengths and weaknesses of the knowledge-sharing process in an organization and designing policies to improve it, the factors affecting the success of this process should be determined. Considering the three sections "Will", "Can" and "May" in the Human Resources Productivity model and the dominance of the "Will" amongst them, in this research, effective factors on the knowledge-sharing process based on willing criteria is determined and analysed by studying the relevant literature. Then, dynamics and relationships among these factors are discussed and a conceptual model is provided. Important strategies are also suggested in this regard. As a case study, the proposed model is applied in an Iranian mother-specialized protein food company and its validity is confirmed by the experts.*

*Keywords: Human Resources Productivity Model, Knowledge Sharing, Strategy, System Dynamics, Will.*

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## Providing a Model to Determine Span of Control in Financial Organizations

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### Abstract

*Span of control is defined as the number of personals who give a report to a manager who manages them directly. A manger with wide span of control may be not able to efficiently control and effectively guide employees. On the contrary, the presence of managers with small span of control is a sign for inefficient organizational structure. Population of Iran and japan is 75 and 110 million, while the number of governmental managers for Iran has become 1.5 times in comparison with the total governmental employees of Japan. Furthermore, there is a manager for every of the 5 employees in operational and staff departments. Therefore, if the administrative system is not revised, the governmental expenditure will be equal to the total budget and the government must borrow extra resources to maintain its structure. The span of control in financial institutions and banks according to the volume of activities and services offered to them is very important. In this article we have tried to determine the span of control model for financial institutions which improve the effectiveness and efficiency of their organizations.*

*Keywords: Span of control, organizational structure, and financial institutions.*

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## Simulation of a multi-layered facility location model by considering queueing theory

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### Abstract

*In multi-layered facility location models, customers receive different services at different layers. When the customer enters the system, he must receive all services at different layers; in fact, the customer will not leave the system in the middle layers. In this study, we are seeking to provide a facility location model with multiple service layers respect to the density of the system. The proposed model is a nonlinear integer programming model and it is in the field of highly complex problems. In order to solve the mathematical model, discrete event simulation approach has been used to increase efficiency. Interactions and complexities of the system, makes it difficult or impossible to predict the performance. Simulation models are able to show variability, interactions and complexities of the system. In this regard, the demand has considered as random and objective functions consist of minimization of customer's travel time to desired facility, customer's waiting time in queue and the possibility of unemployment of a facility which has the highest rate of unemployment. According to the results of simulation and testing 4 different scenarios, it can be stated that in scenario (4), only by adding 1 source to each available facility in the fourth layer, which is totally increasing 4 source, costumers wait time in queue will be improved about 46%.*

*Keywords: Facilities locating, Queueing theory, Multi-objective decision making, Simulation.*

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## Investigating the relationship between information technology Penetration coefficient and organizational agility in the Iranian companies (Listed in Tehran stock exchange)

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### Abstract

*Organizational agility is one of new paradigms in the field of organizations management which has been presented to reward the environmental changes and satisfying the customer needs. One of the numerous factors affecting the organizational agility is to apply the Information Technology (IT). This study investigates the relationship between the IT penetration coefficient and organizational agility. This study is of type the applied research in terms of objective and it also uses survey-descriptive and correlation method in terms of nature and method. Closed questionnaire was used for examining the variables. Population is the companies accepted in Tehran Stock Exchange in 2013-14. The questionnaire and structural equation modeling were used for analyzing the obtained data and testing the hypothesis, respectively. The results obtained from data analysis indicate that the technology acceptance combination model and organization agility model are both powerful models for anticipating the organization agility and the attitude towards the use of IT has the most effect on the organization agility.*

*Keywords: Information Technology, Organization Agility, Structural Equation Model, Technology Acceptance Model, Tehran Stock Exchange*

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## Classification of CRM systems with knowledge creation approach

Case of: Internet Service Provider corp

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### Abstract

*Now a days Customer knowledge is one of the most interesting topics for every organizations in order to gain competitive advantage. Competitive advantage can be achieved through creation of new knowledge. The point is that it is important to know that how information about customers is collected and lead to create new knowledge. In this paper, we consider the levels of support for customer knowledge creation processes by customer relationship management (CRM) in the case. All CRM systems that used in the organization were identified and categorized based on semi-structured interviews with experts in various fields. Then the process of knowledge creation that is created by each system were identified. The survey showed that analytical CRM systems support combination process, operational CRM systems support socialization and externalization processes, and collaborative CRM systems support socialization process. On the other hand, collaborative and analytical CRM systems support internalization process by creating learning opportunities.*

*Key words: customer knowledge, customer relationship management, Knowledge management, knowledge management systems*

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